AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) A fuel cell, comprising:

a first polymer electrolyte membrane (PEM);

a plate having a first series of flow channels formed in a first surface and defining a first series of land portions disposed between and separating adjacent flow channels;

a first diffusion medium that is disposed between said first PEM and said plate and that is in direct contact with said first surface; and

a first sealing layer adhered to said land portions of said plate ~~including said flow channels that secures~~ to secure said direct contact between said first diffusion media and said plate and ~~that seals~~ to seal said first surface.

2. (original) The fuel cell of claim 1 wherein said first sealing layer is an epoxy resin.

3. (original) The fuel cell of claim 1 wherein said first sealing layer is electrically conductive.

4. (original) The fuel cell of claim 1 wherein said first sealing layer is electrically non-conductive.

5. (currently amended) The fuel cell of claim 1 ~~further comprising a first series of lands formed in said plate,~~ wherein said first diffusion media is in direct contact with said first series of land portions ~~lands~~.

6. (original) The fuel cell of claim 1 wherein said first sealing layer is initially applied to said first surface in a non-cured state and a portion of said first diffusion media is immersed through said first sealing layer to contact said first surface, said first sealing layer achieving a cured state to secure said first diffusion media to said first surface.

7. (original) The fuel cell of claim 1 further comprising:

a second series of flow channels formed in a second surface of said plate;

a second diffusion medium that is disposed between a second PEM and said plate and that is in direct contact with said second surface; and

a second sealing layer that secures said direct contact between said first diffusion media and said plate and that seals said second surface.

8. (original) The fuel cell of claim 7 wherein said second sealing layer is an epoxy resin.

9. (original) The fuel cell of claim 7 wherein said second sealing layer is electrically conductive.

10. (original) The fuel cell of claim 7 wherein said second sealing layer is electrically non-conductive.

11. (original) The fuel cell of claim 7 further comprising a second series of lands formed in said plate, wherein said second diffusion media is in direct contact with said second series of lands.

12. (original) The fuel cell of claim 7 wherein said second sealing layer is initially applied to said second surface in a non-cured state and a portion of said second diffusion media is immersed into said second sealing layer to contact said second surface, said second sealing layer achieving a cured state to secure said second diffusion media to said second surface.

13. (original) The fuel cell of claim 7 wherein said plate is a bipolar plate, wherein said first series of flow channels facilitate a cathode feed gas flow and said second series of flow channels facilitate an anode feed gas flow.

14. (original) The fuel cell of claim 13 wherein said plate includes cooling channels formed therethrough.

15. – 24. (cancelled)

25. (currently amended) A fuel cell system, comprising:

a fuel cell stack including a plurality of fuel cells in electrical series connection, each of said plurality of fuel cells comprising:

a polymer electrolyte membrane (PEM);

a cathode plate having a series of cathode flow channels formed in a cathode surface thereof and defining a first series of land portions disposed between and separating adjacent cathode flow channels;

a first diffusion medium that is disposed between said first PEM and said plate and that is in direct contact with said cathode surface; and

a first sealing layer adhered to said land portions of said cathode surface ~~including said cathode flow channels that secures~~ to secure said direct contact between said first diffusion media and said plate and ~~that seals~~ to seal said cathode surface.~~; and~~

26. (original) The fuel cell system of claim 25 wherein said first sealing layer is an epoxy resin.

27. (original) The fuel cell system of claim 25 wherein said first sealing layer is electrically conductive.

28. (original) The fuel cell system of claim 25 wherein said first sealing layer is electrically non-conductive.

29. (currently amended) The fuel cell system of claim 25 ~~further comprising a first series of lands formed in said plate,~~ wherein said first diffusion media is in direct contact with said first series of land portions ~~lands~~.

30. (original) The fuel cell system of claim 25 wherein said first sealing layer is initially applied to said cathode surface in a non-cured state and a portion of said first diffusion media is immersed through said first sealing layer to contact said cathode surface, said first sealing layer achieving a cured state to secure said first diffusion media to said cathode surface.

31. (original) The fuel cell system of claim 25 further comprising:

an anode plate having a series of anode flow channels formed in an anode surface thereof;

a second diffusion medium that is disposed between a second PEM and said anode plate and that is in direct contact with said anode surface; and

a second sealing layer that secures said direct contact between said second diffusion media and said anode plate and that seals said anode surface.

32. (original) The fuel cell system of claim 31 wherein said second sealing layer is an epoxy resin.

33. (original) The fuel cell system of claim 31 wherein said second sealing layer is electrically conductive.

34. (original) The fuel cell system of claim 31 wherein said second sealing layer is electrically non-conductive.

35. (original) The fuel cell system of claim 31 further comprising a second series of lands formed in said anode plate, wherein said second diffusion media is in direct contact with said second series of lands.

36. (original) The fuel cell system of claim 31 wherein said second sealing layer is initially applied to said anode surface in a non-cured state and a portion of said second diffusion media is immersed into said second sealing layer to contact said anode surface, said second sealing layer achieving a cured state to secure said second diffusion media to said anode surface.

37. (original) The fuel cell of claim 31 wherein said cathode and anode plates constitute a bipolar plate, wherein said cathode flow channels facilitate a cathode feed gas flow and said anode flow channels facilitate an anode feed gas flow.

38. (original) The fuel cell system of claim 37 wherein said bipolar plate includes cooling channels formed therethrough.